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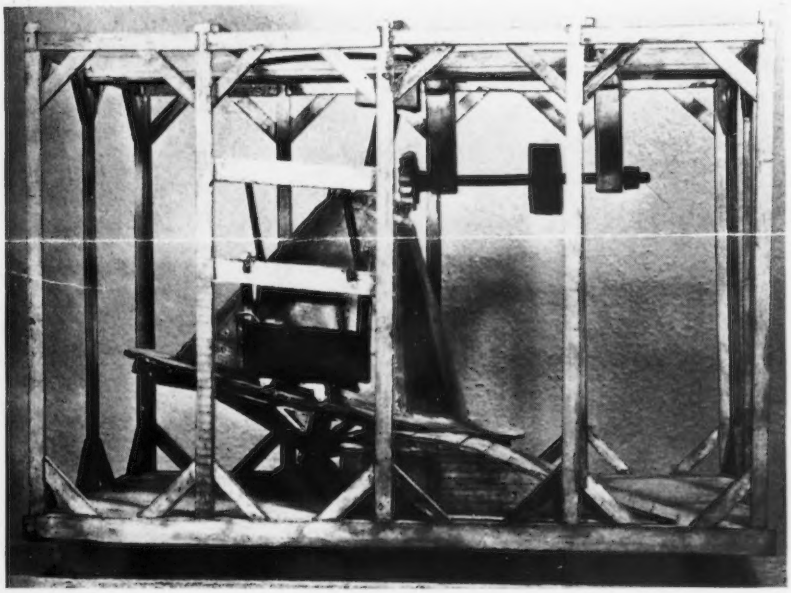
Dog and Horse Power

By JOSEPHINE H. PEIRCE

Most of us do not remember when horses exerted the energy that ran our factories, and few persons even know that before the horses, dogs furnished power for the manufacture of small articles.



HORSE POWER
(From a model in the museum of the Leicester Public Library)

In the early settlements of the Colonies, land was immediately appropriated for saw, corn and fulling mills, which were built on the brooks and rivers until all mill privileges were taken. Other industries were carried on in the homes, — carding, spinning and weaving, — and the garments of a household were dependent on the first process — the carding of cotton and wool. Several of the colonies passed resolutions "recommending and encouraging bounties to manufacturers of wool and cotton cards, iron wire, etc.," for the cost of the materials imported from England was exorbitant, and the supply entirely inadequate.

The history of Leicester, Massachusetts, has been very closely identified with the development of card manufacture in this country, for it was before 1785 that Edmond Snow and Pliny Earle commenced making hand cards for the use of spinners in the Mannville district. About 1790, Samuel Slater, who originated in the United States the manufacture of cotton cloth by mechanical power, tried in vain to find card clothing suitable for his machines when he met Mr.

(*Continued on page 27, column 1*)

The Straw Hat Maker

By WILLIAM B. SPRAGUE

Hats of split straw were first made in this country about 1800 (C). "In 1798, Miss Betsy Metcalf, who afterwards by marriage became Mrs. Baker, though only twelve years old on this date, and without any previous knowledge of the art, made, in Dedham, Mass., from oat straw, which she smoothed with her scissors, and split with her thumb-nail, a bonnet of seven braids, with bobbin insertion like openwork, and lined with pink, in imitation of a then very fashionable style of English bonnets. The straw was bleached by holding it in the vapor of burning sulphur. Her bonnet was very much admired by the ladies of the vicinity, who came from the neighboring towns to see it. Operatives were instructed in the method of their construction by the young inventor, and thus the foundation was laid of an extensive business, which was followed in Dedham, Wrentham, Providence, and other New England towns, and elsewhere" (A). Miss Sophia Woodhouse, of Wethersfield, Conn., and the Misses Burnap, of Merrimac, N. H., are still remembered as early nineteenth-century pioneers in the straw hat making field (A) although the industry had been practiced in Italy for a couple of centuries (I). One authority (H) describes a "new and improved" method of manufacturing straw into hats and bonnets, for which one Peter Boileau obtained a patent in May, 1798, but fails to state whether it proved practical or popular.

Rye straw was preferred (B), although wheat was sometimes used (C). The stalks were gathered while the grain was "in the milk" (B), cut at the joints and the outer skin removed (C, D, F), tied up into bundles (B, C) about eight or ten inches in length and a foot in circumference (F) and the heads cut off (B). The

bundles were dipped in boiling water (B) and then shaken a little "so as not to retain too much moisture" (F). They were then dried in the sun (B, I), being taken in at night to avoid exposure to the dew (B). After remaining in stacks for about a month (I), they were bleached in sulphur vapor (D) by "being placed on their edges, in a box which is sufficiently close to prevent the evaporation of smoke. In the middle of the box is an earthen dish, containing brimstone broken in small pieces; this is set on fire, and the box covered over, and kept in the open air several hours" (F, G).

Before splitting the straw, it was moistened again to make it pliable (B). An American publication (B) describes the splitting tool as "a piece of wood about five inches long, with a series of sharp spurs near the end, and a wooden or metal spring at one side to press down the straws as they were drawn through." The examples of this tool which have been seen by the writer vary in length from about four to ten inches. At one end of the block is a row of upright metal teeth, iron on the larger sizes and brass on the smaller. Sometimes the teeth in half the row are set further apart than in the other half, to permit of a choice in the coarseness of the split. At the other end of the block is fixed one end of a metal spring or leaf, which, in the absence of pressure, bends upward from the surface of the block. The straw to be split was laid across the teeth, the spring forced down upon it and the straw then drawn through the teeth. In Europe, they used "a wire, having from six to eight sharp edges, which is pushed up the hollow of the straw, dividing it into an equal number of parts (B), also "a tube inside of which are fixed several small sharp blades so that the straw cannot pass through without meeting them and thus comes out divided into strips called *splints*" (D, E). There is, as yet, no evidence that either of these types of splitter was used in America.

After the straw was split, it was turned over to the plaiters (C). In the plaiting room "were a number of young girls, whose nimble fingers were in constant motion. Each of them held under her arm, by a gentle pressure lest she should crush them, a roll or bundle of cut and prepared straws, or splints, slightly tied around one end with a piece of linen; she held some of these in her left hand; and with the fingers and thumb of each hand, was carefully but quickly pressing them inwards one over the other, keeping the bright side of the straw upwards, then bending those from the other side, keeping the edges of them quite straight; each tucked in a fresh piece of splint before the one in hand was worked up; often stopping before half was used up, if there appeared any defect in it. These ends had to be nicely cut off. There was something awkward in the motion of their hands; and the fact was that they plaited with the second finger and thumb of each hand, keeping the forefinger poking out, as if useless; but really this forefinger was not suffered to be idle, it was rather kept in store to dress the work; that is, to stroke in any straggling straws, or such as did not bend in the proper places. Although the splints are damped to make them pliable, yet they must not be wetted too much" (E).

"Each plaiter should have a small linen work bag, and a piece of cardboard to wind the plait around. After five yards have been worked up, it should be wound around a board half a yard wide, fastened at the top with yarn and kept there for several days to form it in proper shape. Four of these parcels, or a score, is the measurement by which the plait is sold. A good plaiter can make three score a week" (F). About seventy yards of plait was required for an ordinary sized bonnet (C).

The plait was then "passed through an apparatus called a *mill*. This consists of two rollers, which press against each other by means of a cross bar and wooden screw. The milling is done by turning a crank attached to one of the rollers, and flattens and improves the plait" (D).

The hat was formed by sewing the plait together "side to side", beginning at the top of the crown (E). It was blocked (C) on a wooden block (E, F) of birch or oak (J), with a hot iron (E, F) or with an "iron containing a heater" (D), and then again bleached with sulphur fumes (F, J).

"When we consider the original small cost of the raw material, and that very high prices are obtained for straw hats of the first qualities, we have indeed good cause for admiration mixed with applause at the good effects of so much industry" (J).

AUTHORITIES

(A) *The Great Industries of the United States*, J. B. Burr & Hyde (Hartford, Conn., 1873) p. 781-2; (B) *American Mechanical Dictionary*, Edward H. Knight (New York, 1874) p. 2417; (C) *American Family Encyclopedia*, Webster and Parkes (New York, 1859, copyright 1845) p. 995; (D) *Book of Trades*, Richard Griffin & Co. (Glasgow, 1848) p. 275-6; (E) *Scenes of Wealth*, Isaac Taylor (Hartford, Conn., 1826) p. 19-20; (F) *Book of English Trades*, C. & J. Rivington (London, 1827) p. 320-2; (G) *Panorama of Professions and Trades*, Edward Hazen (Philadelphia, 1837) p. 61-2; (H) *Domestic Encyclopedia*, A. F. M. Willich (Philadelphia, 1821) p. 286; (I) *Illustrations of Useful Arts and Manufactures*, Charles Tomlinson (London, 1858) p. 55; (J) *The Complete Book of Trades*, James Whittock (London, 1837) p. 419.

Know Thy Bunions!

By SIGMUND EPSTEIN

This bit of humor was clipped from *Harper's Weekly*, from the year 1868. Seventy years ago, one of the common

causes of toe deformities was the making of shoes with square toes, exactly the same last being used for the right foot as for the left. The leather used for the average man's shoe was thick, heavy, hard and unyielding, and soles were, for the average trade, five-eighths of an inch thick! The near-sighted old gentleman hops on his one good foot, while focusing his spectacles on the marvels of corn-cure advertising in the days of General Grant. The printed word still had magic power in those post-war days, while some of its glamor lingers today only when illustrated with a bathing beauty in striking negligée. Sales resistance has been built up against corn-macerators by the widespread advertisement of hygienic shoes.

Dog and Horse Power

(*Continued from page 25, column 2*)

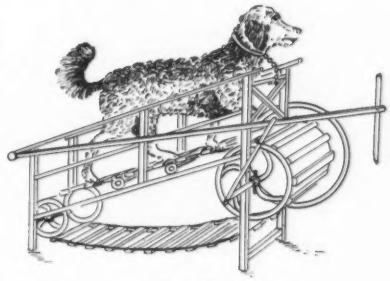
Earle. Up to that time, machine cards had been made in a manner called "plain" but Mr. Slater needed "filleted" cards. Although it was a new undertaking, Mr. Earle agreed to make the clothing for Mr. Slater's machines, and while the teeth were made by machinery, the holes, where the teeth were to be inserted in the leather, were pricked by hand with a couple of needles fitted and fastened into a handle. The cards were sheets of calfskin, cut into strips eighteen inches long by four inches wide, and more than 100,000 holes were pricked. It is not surprising that as soon as the job was finished, Mr. Earle set to work to invent a machine to prick the holes, and about 1797 he had accomplished it. Although in constant use, a patent for the machine was not issued until 1803, but its principle formed the basis of all such machines used for many years.

These hand machines called "pricking machines," were used on farms, and Mr. Earle's son, Dr. Pliny Earle (who became world famous for his work with the insane) in his autobiography wrote: "The persons who did the work of card-making for my father were chiefly the women and children of the farmers. . . . People in Leicester and all the adjoining towns engaged in the work. . . . We had several 'routes' in which a horse and wagon was sent out from the factory for a circuit of from fifteen to twenty-five miles among the farmers, to carry the leather and teeth to the 'settlers' and collect from them the finished cards. Others, living nearer, came themselves to the factory to get the material and return the cards they had set." From this factory in Mulberry Grove, the finished cards were taken by horse-teams as far as Charleston, South Carolina.

As the business increased, the machines at the factory were run by dog power, and a paper written by a member of the Col. Henshaw Chapter, D.A.R., years ago tells that "cards were set by machinery run by dog power by the Potters and Earles in the double tenement house that stood at the south side of the road in Mannville."

The manufacture of cards soon became the distinctive business of the town, and for a long time the principal source of wealth. In writing of this industry in Leicester, Rev. A. H. Coolidge, who published a history of the town in 1890, stated, "At first the machines were moved by hand. Dog-power was then introduced, then horse-power." Lory S. Watson, who founded the L. S. Watson Manufacturing Company, moved to Leicester from Spencer in 1842 and began the manufacture of hand cards with two card-setting machines in the rear of his house and run by dog-power. Other factories flourished and dog-power was used in them.

Although no one now living in the town remembers when dogs were used in the manufacture of cards, Rev. Al-



Dog Power

Does this account for the expression "A Dog's Life"?

bert Warren, a 93-year-old native of Leicester now living in St. Paul, Minnesota, in answer to my inquiries, wrote the following: "My father, when a boy, was bound out to James Trask, who lived just north of the bend in the road about half a mile south of Breezy Bend, to learn the trade of card-machine tender. He told me that one of his duties was to change the dogs. There was a working scheme for dogs in those days—not over five hours a day, or thirty hours a week," and Mr. Warren continued, "Before Mr. Trask's death in 1848, the power had been changed to horse-power."

As there were no state regulations for the use of dogs that I can discover, it is possible that their use for this purpose was limited to this particular locality. While no one seems to know exactly what type of unit the dogs used, there is evidence of a traveling platform which slipped beneath their feet, as they eternally walked uphill. An old rotting platform of this type, that has seen much service, too small for a horse, is still in existence in an outlying section of the town. However, dogs have been used in many parts of the United States to turn barrel or dasher churns in dairies, and a patent was issued on April 27th, 1818, to Anthony Tiernan of New York for "Agency of dogs as a new power." *The Country Gentleman*, in 1858, printed advertisements several times through the year for the sale of "Wood Saw Mills, Dog Powers, Cider Mills & Presses," as well as "Horse Powers."

Mr. Warren believes the type of horse power used in Leicester was never used anywhere else, although units of some sort were used in nearly every community. He writes, "It was in general use in the card factories in 1832, and I can remember its use in a number of shops. By 1870, all horse power had been replaced first by hot air engines and later by steam."

The power consisted of an upright wooden shaft about fourteen inches in diameter, which was enclosed in a conical structure from the base of which an inclined platform three and a half feet wide extended, the whole being supported by a structure of spokes radiating from the shaft with a total diameter of twenty to twenty-four feet. At the top of the conical structure, a flat wheel five or six feet in diameter, provided with cogs, engaged a pinion attached to the main shaft of the shop. The horse stood enclosed in a compartment attached to an outer frame, the floor of the compartment being formed by the movable and inclined platform, which, of its own gravity, always had a tendency to move under the weight of the horse, transmitting thereby a tendency to the horse to keep in motion. The weight of the horse furthermore tended to give firmer engagement to the pinion and gear on the top of the shaft.

From a description given from memory by Mr. Warren, a working drawing was prepared, and the model here pictured constructed in 1932. It is kept in the museum of the Leicester Public Library. Coolidge's history states that the horse power was used not only for card manufacture, but for making boots and shoes.

Mrs. Mary Hanna of New York and Leicester, who boasts of eighty-five years, tells me that, as a little girl, she used to go into the Central Factory to watch the machines, and said, "Every little while the machines would suddenly stop. Then a man would rush down the stairs, find the poor old horse had gone to sleep, whip him awake, and things would run smoothly —until it happened again."

Steam engines were in use for some purposes as early as 1824, for Dr.

Pliny Earle wrote of a small steam engine being placed in the card factory to run the cutting machine. Mr. Warren remarks, "The first record I found of the use of steam was an advertisement in *The Worcester Spy* in 1832 of a steam engine for sale at the Central Card Factory, and the reason for selling, I learned, was that it took too much wood to run it, and the power was too expensive." So the use of horses continued until the 1860's.

Cards of all kinds are still being manufactured in Leicester, by the L. S. Watson Company, now managed by the fourth generation of the family, the only independent company of its kind, and are sent to all parts of the world.

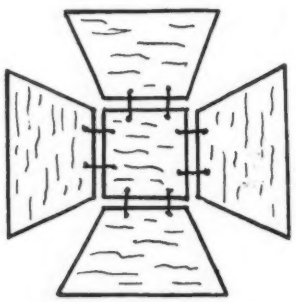
Butter Molds and Prints

By Mary Earle Gould

Butter molds and prints were made from maple and shaped on a lathe. Until one sees a collection such as Mr. Albert Wells displays in his Museum in Southbridge, Massachusetts, as well as a few unusual ones in the writer's collection, he does not realize the many shapes and countless designs.

The commonly known mold is the cup-shape one, with the print as a separate piece. These may be either square or round, from those of little over an inch in diameter to those of three or four inches. The butter was packed into the cup-like holder and pushed out, printed and shaped. Other molds are oblong-shaped boxes with prints at the bottom. A very early and rare one is that which is made of five sections, each with a print on it. The center piece is square. On each side of this square is fastened, with the early wire hinges, four side pieces each independent of the other. The side pieces are wider at the edge opposite the hinged side, so that, when opened flat, the five pieces resemble a maltese cross. This shuts up, box like, and prints the butter top and four sides.

The butter prints are varied in shape and are often confused with the cookie prints which the Pennsylvania "Dutch" used. The common butter print is round with a short protruding handle. An unusual one is semi-circular in shape with a short handle. The writer has three prints which, just recently, were said to be "Dutch" cookie prints. One is round, an inch in depth, and has a print on one side only. Another is similar, except that there is a print of different pattern on either side. They have no handles. The third is this same round print, except that it is more than two inches thick and the upper half is cut smaller than the print part, which serves as a handle. These three were supposed to be butter prints until someone said that their "Dutch" relations in Pennsylvania used them to make cookies. If the oblong, blocked gingerbread prints were used to stamp gingerbread, these molds could stamp round cookies.



Folding Butter Mold

I am informed by a cooper from England, now working in a factory in Massachusetts, that there was a metal design with which the molds and prints were stamped, which would appear to be like the stencilling sheets. This was used in a machine and a knife followed the design. In the beginning, this must have been done by a pattern and a jack-knife, and then a machine invented to do more perfect work. At a later period, the mold was first steamed and then put under pressure of one hundred thousand pounds. The design was of metal and, blade-like, cut the wood in the press. "Scotch hands," or corrugated paddles, were machine pressed, as well as the prints and molds.

It would seem that too little has been saved to show how these changes in making molds came about. Where are the metal designs and where are the machines with the designs? No cooper undertook this task, so there must have been a shop and a man for this trade — and he left no name by which we might call him. Perhaps this will be solved by research workers.

Can any of the readers tell me more about the cookie-prints?

Willich's Encyclopedia

According to Willich's *Encyclopedia* (1821) a mole-trap "ought to consist of a hollow wooden semi-cylinder, each end of which should be furnished with grooved rings, containing two nooses of horse-hair that are fastened loosely in the centre, by means of a peg, and are stretched above the surface of the ground, by a bent stick or strong hoop. As soon as the mole passes half way through one of these nooses, and removes the central peg in his course, the curved stick rises in consequence of its elasticity, and thus strangles the animal." The same work states that the easiest method of destroying moles on a large scale is "to expose a few living lobsters in a deep glazed earthen vessel, the top of which is somewhat narrower than its basis, so that they cannot escape: such a pot must be buried several inches deep in the ground, and covered with green sods, so as to be accessible to the mole, which is remarkably partial to that shell-fish. No sooner has one of the former entered the pot, than others in the vicinity will hasten to the fatal receptacle, in consequence of the noise made by the captive: and thus meet with inevitable destruction."

The same publication contains the following directions for constructing an ice-box: "Make a strong wooden box 4 feet square, and as much deep. Make another such box, 4 feet 2 inches square, and as much deep; insert the smaller in the larger and fill up the interstice with pounded charcoal. Paint if you please the outside. When filled with pounded charcoal, connect the two boxes at top with a slip of wood all round, of 6 inches broad or more, according to the thickness of your boards, which should be at least 1½ inches thick. Adapt a tight cover; double; filled with charcoal powder. In a hard frost pour into the bottom as much water as will freeze: and do so until you get your case filled with solid ice. Then fit on your cover. Keep it covered with an old blanket: and in summer use your ice."

"The famous bishop Wilkins was so confident of success in it (artificial flying), that he says, he does not question but, in future ages, it will be as usual to hear a man calling for his wings, when he is going on a journey, as it is now to call for his boots."

Early American Industries Association

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Communications should be addressed as follows: Pertaining to the *contents* of THE CHRONICLE, to W. B. Sprague. Applications for membership, to S. E. Gage. Suggestions of prospective members, to Howard G. Hubbard. Other matters to Burton A. Kollmer. Addresses as above.

This issue was printed by Leon S. Case Flushing, N. Y.

W. B. SPRAGUE, *Editor.*

Our Purpose

The purpose of the association is to encourage the study and better understanding of early American industry, in the home, in the shop, on the farm, and on the sea, and especially to discover, identify, classify, preserve and exhibit obsolete tools, implements, utensils, instruments, vehicles, appliances and mechanical devices used by American craftsmen, farmers, housewives, mariners, professional men and other workers.

Dues

The annual dues are payable September 1st, and are as follows: Regular members $1.00; Contributing members, $2.00; Supporting members, $5.00; Sustaining members, $10.00, and up. There is no distinction between the classes, except the amount of the dues, but the publication of THE CHRONICLE cannot be financed unless a considerable number of the members pay more than $1.00. Each member is expected to voluntarily place himself in the class which represents the amount he is willing to contribute to the support of the Association for the current year. THE CHRONICLE is sent to all members without additional charge. Many of the back numbers may be secured from the Treasurer for 20c each. For further information, address any of the officers.

Index to Volume I

The first twenty-four numbers of THE CHRONICLE, which were issued during the first four years of the Association's existence, will make up into a volume of convenient size and weight. An index to this volume has been carefully prepared, and approved as to form by an expert librarian. This index is in four parts; first, a table giving the titles of all articles; second, a list of the illustrations by their captions; third, a list of all literary works and authors to which our writers have referred (which in itself should be a most useful bibliography); and fourth, a "general" index, in which we have endeavored—we hope successfully—to indicate each page where any informative reference is made to any given thing or person, including an elaborate system of cross-indexing. Some idea of its comprehensiveness may be gained from the fact that the printer estimates it will fill at least twelve pages the same size as THE CHRONICLE, although considerably smaller type will be used.

The problem which confronts us is the financing of the cost, which is estimated to be in the neighborhood of $200. This was discussed at length at the annual meeting of the Association at Northampton, and it was decided to offer printed copies of the index to the members at a minimum of $1.00 per copy, and to ask those who wish to insure the printing of it, to contribute as much more as they feel they can spare, as quite obviously the only members who will have use for it, will be those who have, or hope to acquire, substantially complete files of the magazine, and it is very doubtful if these would number anything approaching 200. About $160 has already been collected.

If you favor having this index printed, please forward your remittance (which we hope will be as liberal as you can make it) to the undersigned. If oversubscribed, any surplus will, of course, be devoted to the general purposes of the Association.

Tentative arrangements have been made with a reliable concern to bind this first volume of THE CHRONICLE for those members who desire it done, but this will be the subject of a definite announcement after the printing of the index has been arranged for.

With the above in prospect, there arises a demand on the part of those who have incomplete files, for copies of back numbers which are out of print. This condition is unfortunate, as many members are now just beginning to appreciate the value of our publication. There is a growing want-list for copies of Nos. 1, 2, 3, 6, 10, 11 and 12 and the Secretary will gladly buy back or by any means receive any of these numbers from ex-members or members who have no particular use for them.

BURTON A. KOLLMER,
Secretary and Treasurer,
Historical Museum,
Richmond,
Staten Island, N. Y.

Antique Shows

The Association expresses its appreciation to those directors of antique shows who have so kindly given us free space for exhibition and promotion purposes. Only a few of our members have thus far volunteered to be present on such occasions and participate in the "missionary work". All those who are willing to do so in the future, and especially any who will lend material from their collections for exhibition are requested to communicate with the Secretary.

Miss Janet Waring, a member of the Association, is the author of a book recently published entitled *Early American Stencils on Walls and Furniture.* We have not had the privilege of examining a copy, but *The* (New York) *Sun* says of it, in part: "This book is recommended to any one who wants to know about the early craftsmen who left a colorful story on furniture, tin, walls, floors and textiles. When an enthusiastic author who knows her subject and an enthusiastic publisher who appreciates good material get together, the result is usually a fine book for enjoyment and reference. *American Stencils* proves this point."

Frequent reference has been made in our columns to *The Progress of Man and Society*, by the Rev. Dr. Trusler, printed in London, undated, but supposed by the owner to have been published about 1820. Mr. Joseph E. Sandford has ascertained from Austin Dobson's *Thomas Bosvick and His Pupils* (Boston, 1880) that the illustrations in *The Progress of Man and Society* were done by John Berwick and the book published in 1791.

It's the Little Things That Count

By Lawrence B. Romaine

The illustration may not look industrial at first glance but, when the little things it contains are examined carefully, industry is certainly represented. The carpenter, mason, blacksmith, tinsmith and cabinet maker would all be proud to see their handiwork still in good repair and ready for the evening meal. The group is not unique nor are any of the individual things especially rare today. They are things that are not thoroughly appreciated and yet count far more in the preservation of the history of early industry than many of the prized possessions of the collecting world of 1938.

The bellows, large and small, are crude devices at best and were probably made on the farm or by the itinerant tinker. The fire tongs and the pipe tongs above them were more than likely the work of the village smith. (The pipe tongs, incidentally, have been called chandelier candle-snuffers and I would appreciate any information as to that possibility.) The tiny maple carved salt box and the ivory inlaid pipe box may have been "off hand" jobs by a cabinet worker, although the salt box is reputed to have been made on a farm and the pipe box on a whaler. The sun-burst sconce was surely the product of a good tinsmith. The wood betty lamp trammel is crude and the whittling certainly the work of a good sharp pen knife in unskilled hands. The two skewer holders and their skewers were from the village blacksmith shops, without a doubt.

Now that we have come to skewers and the evening meal, the next in line for comment is the flipper for the cakes to be cooked on the hanging one-arm griddle. The flipper is hand-wrought and well made. The heart at the bottom and a spade, club and diamond on the handle would indicate that it was made by or for a whist fiend. There are many hanging griddles in the world but the old timers with one arm, made on the anvil from one piece of iron, are the best and the rarest. The pots and skillets of various sizes are not uncommon but were very useful; many of their contemporaries have long since rusted through and been sold for scrap iron. The crane is another example of the common and yet the essential. Such simple pieces seldom reach headlines in collecting annals. The bricks around the ashes serve well to keep the hearth clean. The old oven door is slid back on its shelf of brick and the ramshorn peel is seen protruding from the opening. The fire dogs are the gooseneck type, sturdy and often unappreciated. Extra trammels, dippers and utensils are lost in shadow but on hand if needed. The five-foot spider is waiting for a chance to fry a tasty morsel and the iron rest to receive its burden. The old stool, with its four pegged legs, is useful now only to sit on and dream of the past. From the iron jamb hook, at the bottom left, to the peg

Fireplace Accessories

sconce lamp and the watch box, at the upper right, these little things used to count a good deal. Today, they count a great deal more in some places but often—alas—are looked upon as junk. When one considers the work they saved, the work they did and the satisfaction they gave to their creators, it must be admitted that they should count, even now.

Metal Alloys

(Continued from last issue)

Bronze. Melt in a clean crucible 7 pounds of pure copper: when fused, throw into it 3 pounds of zinc, and 2 pounds of tin. These metals will combine, forming bronze, which, from the exactness of the impression which it takes from a mould, has, in ancient and modern times, been generally used in the formation of busts, medals, and statues.

Bell metal. Melt together 6 parts of copper, and 2 of tin: These proportions are the most approved for bells throughout Europe, and in China. In the union of the two metals above mentioned, the combination is so complete, that the specific gravity of the alloy is greater than that of the two metals uncombined.

Brass solder for iron. Thin plates of brass are to be melted between the pieces that are to be joined. If the work be very fine, as when two leaves of a broken saw are to be joined together, cover it with pulverized borax, melted with water; that it may incorporate the brass powder which is added to it: the piece must be then exposed to the fire without touching the coals, and heated till the brass is seen to run.

To gild leather. In order to impress gilt figures, letters, and other marks upon leather, as on the covers of books, edgings for doors, etc., the leather must first be dusted over with very finely powdered yellow resin, or mastich gum. The iron tools or stamps are now arranged on a rack before a clear fire, so as to be well heated, without becoming red hot. If the tools are letters, they have an alphabetical arrangement on the rack. Each letter or stamp must be tried as to its heat, by imprinting its mark on the raw side of a piece of waste leather. A little practice will enable the workman to judge of the heat. The tool is now to be pressed downwards on the gold leaf; which will of course be indented, and show the figure imprinted on it. The next letter or stamp is now to be taken and stamped in like manner, and so on with the others; taking care to keep the letters in an even line with each other, like those in a book. By this operation, the resin is melted; consequently the gold adheres to the leather; the superfluous gold may then be rubbed off by a cloth, the gilded impressions remaining on the leather. In this, as in every other operation, adroitness is acquired by practice.

The cloth alluded to should be slightly greasy, to retain the gold wiped off; (otherwise there will be great waste in a few months,) the cloth will thus be soon saturated or loaded with the gold. When this is the case, these cloths are generally sold to the refiners, who burn them and recover the gold. Some of these afford so much gold by burning, as to be worth from a guinea to a guinea and a half.

(To be continued in next issue)

Early American Industries Association

Membership

Membership lists should be amended as follows: (N) indicates new member; (S) indicates non-member subscriber; (Ch) indicates change of address; (D) indicates decease; (R) indicates resignation; (Co) indicates correction.

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Carpenters, Joiners and Cabinet Makers

By L. L. THWING

One of the ways that we get our surnames is from the trade followed by some one of our remote ancestors. In the early Middle Ages, we were known as John the Baker or James the Miller. Out of this habit of identifying a man by his trade, or where he lived, grew another practice of similarly identifying him in legal documents. In 18th century wills and deeds, it was an almost invariable custom to mention either a man's trade or station in life. Thus he might be named a "hornbreaker" or a "felmonger"; or if not a craftsman, a "yeoman" or a "gentleman." If your family name happens to be Carpenter, you probably have a good idea of the nature of your ancestor's work but just what was the difference between a carpenter and a joiner, and between a joiner and a cabinetmaker? These questions can never be answered without including a great many exceptions, but something may be said on the subject. We can consult the dictionary, even the huge Murray's *English Dictionary* but trade practices and terminologies change faster than dictionaries. For example, the present dictionary definition of a cabinetmaker fails to hint that his usual business today is repairing old furniture.

Carpenters, housewrights and possibly housejoiners were probably one and the same trade. Henry Allen of Boston, in 1660 and later, used all three trade names at different times. The term "carpenter" was common in 17th century Boston, but it was gradually supplanted by the term "housewright" or "housejoiner" so that by 1800, the two latter terms were more common. To prove this would require many patiently assembled statistics and the final result might be inconclusive but it is safe to state that there was at least a marked trend in that direction. This trend reversed itself in the 19th century, so that the terms "housewright" and "housejoiner" disappeared from Boston directories but not altogether from the directories of the smaller towns.

Moxon's *Mechanick Exercises* (1677) defines joinery as "an art Manual whereby several pieces of wood are so fitted and joined together . . . that they shall seem one entire piece." Dr. Samuel Johnson, whose dictionary of 1756 was more than a compilation, defines a joiner as: "One whose trade is to make utensils of wood compacted." As an example, he cites that a joint stool is not made "merely by inserting the feet but by inserting one part into another,"—in short a framed and mortised stool or chair. He again refers to joiners in an essay, this time in their capacity as inside finishers. He complains of the difficulty of getting a joiner out of the house, once he starts working in it. Noah Webster, who edited the first American dictionary in 1829, defines a joiner as "a mechanic who does the woodwork in covering and finishing buildings." Murray's *English Dictionary* defines the art as light and ornamental carpentry. Altogether we have a picture of a joiner as an inside and outside house finisher and a maker of the simpler house furnishings.

Ormsbee, in *Early American Furniture Makers*, points out that joiners were the furniture makers of early New England. It is evident that there would be little demand at this time for the relatively costly mahogany of the 18th century, and it is reasonable to assume that joiners could make all the furniture demanded by most 17th-century homes. Out of a list of about one hundred and fifty early Boston cabinetmakers and joiners, compiled by the writer, there are but forty-two cabinetmakers, from 1630 to 1800. Of the hundred odd joiners, some such as William Connery (1735) call themselves both joiners and housejoiners, and others, such as Samuel Connibel, both joiners and housewrights. Of the forty-two cabinetmakers, only five are likely to have been working in the 17th century and but fifteen prior to 1750. These figures apply only to the town of Boston.

There was probably as much demand for joiners after 1750 as before, but there was more demand for good furniture and, beginning about 1725, joiners began to call themselves cabinetmakers. Later, the number of cabinetmakers increased and the term "joiners" gradually fell into disuse. The last joiner mentioned in 18th-century Boston directories was Fred Toult whose shop was on Frog Lane. The term, however, seems to have been used in the smaller towns until the middle of the 19th century. It is found in the first East Boston directory (1848) and in the first Newburyport directory. During the first century of Boston life, it was apparently the ambition of every carpenter to become a joiner, and of every joiner to be a cabinetmaker, — at least in name. To silence all doubts of the nature of a 17th-century Boston joiner's work, the following may be quoted from the Town Records for 1665: "John Glander fined 10s for opening shop without liberty, which fine he payed in a Chaier."; and on the same page is another item of interest: "John Hubbert hath not liberty to abide in the Towne vnles he serue 3 yeare to perfect hime in the trade of a Joinner."

COMMUNICATIONS

From MRS. FRANK D. PEIRCE:

"In THE CHRONICLE for September, 1937, an article on stoves suggests that the one pictured as Fig. 1 is of 1750. I have never found one like this (which suggests the Shaker type) dated earlier than 1774—usually later. Of course the six-plate stoves, described as Holland stoves, were in use much earlier. The *Boston Gazette* for October 7/14, 1723, advertised a Holland stove for sale.

Fig. 3 in the same article is the kind of stove made at the Tyson Furnace in Plymouth, Vermont (which began operations in 1835) and the Plymouth Historical Society owns one with identical castings, even to the date 1839 and No. 7, with the addition, however, of the words 'Plymouth, Vt.' on the door. Probably this was a new design in castings. Ship's cabouses were cooking stoves, usually, of course, for use on board ship, the first patent being that of John Youle, N. Y., in 1795. These box stoves came in house sizes from 0 to 7, the former being fourteen inches long, and No. 7 forty inches long. They were usually named for the design of the castings, popular ones being 'Rising Sun,' 'Forest Rose' and 'Tropics' with beautiful (?) palm trees, etc. Larger ones, suitable for halls, schools and churches, came in sizes to No. 14.

The article also mentions that fire frames were set into fire places. The ones I have found were always placed in front of a bricked-up fireplace, or cemented into a chimney where there was no fireplace, and were to be used instead of the latter.

In an earlier number of THE CHRONICLE (May, 1936), also in an article on stoves, Mr. L. L. Thwing mentions a brick stove called a 'Copenhagen.' Just recently I have found a description of a brick stove, invented in 1795 by Dea. Elezer Spofford of Jaffrey, N. H., which may be the sort of stove Mr. Thwing mentions. The Deacon wrote: 'As I had in my house a Fireplace, as bad to fill a room with smoke, as ever I saw in my travels, and as I had seen a number of the said stoves (Franklin stoves), concluded to purchase one for the aforementioned smoky fireplace the first opportunity. But by viewing said stoves, in several fireplaces, found that many of them cracked or broke by the heat of the fire, or otherwise—concluded to try an experiment with brick as much in imitation of the said iron stoves, as I could, and by the trial, I have obtained my wish. I think I can recommend the improvement, for four reasons, viz.,

1. There is no odd smell in a warm room, which an iron stove produces. 2. They are more desirable. 3. The cost is not one fourth part so much as one of the abovesaid iron stoves. 4. The hearth may lay even with the floor. Whoever inclines to try this new improvement, may accomplish the same to his wish, when he is provided with materials.' These were apparently very successful, and were made in some quantity by Capt. John Dodge, in Salem, Massachusetts.

Later, in 1812, a number of brick stoves, both square and round, were made from a porcelain model of a Russian stove, brought from Russia by Capt. Solomon Towne. Capt. Dodge made just one of the Russian stoves before he died, but we find a record of about thirty made by his assistant. Of these one was in the Essex Bank, two in the South Meeting house, and the rest in private dwellings. These stoves were guaranteed to 'warm a common room for twenty-four hours with ten sticks of wood — each three inches in diameter, and two feet long, keeping the room at about sixty degrees of Fahrenheit's thermometer on an average for the twenty-four hours.' Perhaps this stove is more like the one Mr. Thwing mentioned.

I have been gathering material on stoves for some time, particularly those of New England, and hope to publish a history of heating stoves sometime this year. The illustrations will be of stoves still in use, and I have about fifty ready. On March 4th, I am taking some of the pictures to use with a talk on old stoves at the Newport, Rhode Island, Historical Society, and sometime soon an article showing some of the more attractive ones will be published by *The American Home*."

From MR. ARTHUR H. HAYWARD:

"I was interested in reading in your January issue a letter regarding the marks on the thumb-pieces of 'hog-scraper' candlesticks, and at once looked over my collection to see what I could find, with the following results. Unfortunately the names were not impressed evenly, so that some of the letters are not readable, but this is what I found on the few that were marked. No. 1. 'Patented 1853' (or 1833, the third figure is not clear)—no name; No. 2. **LLOW; No. 3. **WLER; No. 4. SHAW; No. 5. SHAW **RMI** — evidently for Shaw, Birmingham, as your correspondent stated.

I have one more marked, very plain one, made of rather heavy *cast* iron. It stands only five inches high and the candle-holder, on the edge of which is the hanging lip, is separate, fastening to the central shaft by a coarsely threaded screw. Turning this forces the candle up as burned. Cast around the bottom in coarse lettering is 'Harris' Patent 1848'."

Mr. Lawrence W. Jenkins, of Salem, Mass., has a tool, of which two views are here shown. He states that it is 14 inches long over all and the blades (which swivel in their sockets) are

UNIDENTIFIED TOOL

1⅜ inches along their edges. Mr. Jenkins will be very grateful for any information—or even any theory—as to its use. (Mr. Jenkins donated the cost of this cut).

From MR. HIRAM E. DEATS:

"In the January CHRONICLE, just received, are illustrations of reamer, shaper and augur for boring water pipe. I have been looking for these for years, without result. We had a wooden pipe line here in Flemington, N. J., about 1809, which continued in use till about 1834. When we put in sewers some forty years ago, they came to light, and I saved all the pieces I could, also a few nipples and ferrules of iron. I also have the contract for boring the holes. There were three hydrants, on Main Street, at intervals, and the folks walked there and got water, from a spring up on Thatcher's hill. The spring is still there, but the pipes became filled with mud. I do not have enough data to make a satisfactory story for one of our local papers, but these illustrations lead me to make another effort."